INTISARI

Sirih merah (*Piper crocatum* Ruiz & Pav) merupakan salah satu tanaman yang secara empiris digunakan oleh masyarakat sebagai obat antikanker. Sirih merah telah diteliti dapat menghambat pertumbuhan sel kanker kolon, payudara, dan leukimia. Penelitian ini bertujuan untuk mengetahui aktivitas sitotoksik ekstrak etanol daun sirih merah terhadap sel kanker kolon WiDr dan melihat potensinya dalam menginduksi apoptosis serta menekan ekspresi protein siklooksigenase.

Penelitian ini termasuk dalam penelitian eksperimental murni dengan rancangan acak lengkap pola searah. Uji aktivitas sitotoksik ekstrak etanolik daun sirih merah dilakukan dengan menggunakan metode 3-(4,5-dimetil thiazol-2-il)-2,5-difeniltetrazolium bromida (MTT) dan dihitung nilai *Inhibitory Concentration 50* (IC_{50}) menggunakan regresi linier *Microsoft Excel 2007*. Pengamatan kematian sel kanker kolon WiDr dilakukan dengan metode *double staining* menggunakan etidium bromida-akridin oranye. Pengujian ekstrak etanolik daun sirih merah dalam menekan ekspresi siklooksigenase dilakukan dengan metode imunositokimia.

Hasil uji aktivitas sitotoksik ekstrak etanolik daun sirih merah dengan menggunakan metode MTT menunjukkan nilai IC_{50} sebesar 727 μg/mL. Hasil uji apoptosis dengan metode *double staining* menunjukkan ekstrak etanolik daun sirih merah dapat menginduksi apoptosis dan hasil uji imunositokimia menunjukkan bahwa ekstrak etanolik daun sirih merah dapat menekan ekspresi protein siklooksigenase.

Kata kunci: daun sirih merah, sel WiDr, siklooksigenase

ABSTRACT

Red betel (Piper crocatum Ruiz & Pav) is one of the medicinal plants that are empirically used by people as an anticancer drug. Red betel has been observed to inhibit the growth of colon cancer, breast cancer, and leukemia. The aim of this research is to determine the cytotoxic activity of ethanol extract of red betel leaf against cells WiDr and investigate apoptosis induction and suppress the protein expression of cyclooxygenase.

This research was experimental research using completely one direction randomized design. The investigation of cytotoxic activity of ethanolic extract of red betel leaf is done by using 3-(4,5-dimethyl thiazol-2-yl)-2,5-difeniltetrazolium bromide (MTT) method and IC_{50} values calculated using linear regretion of Microsoft Excel 2007. Observations of the death of WiDr colon cancer cells was performed by double staining method using acridine orange-ethidium bromide. The activity of extract of red betel leaf in suppressing the expression of cyclooxygenase was conducted using immunocytochemistry method.

The results of the cytotoxic activity test ethanolic extract of red betel leaf using MTT method showed IC_{50} value of 727µg/mL, apoptosis double staining method shows ethanolic extract of red betel leaf have a potential of inducing apoptosis and the result of immunocytochemistry assay showed that ethanolic extract of red betel leaves can suppress protein expression of cyclooxygenase.

Keywords: red betel leaf, WiDr cells, cyclooxygenase